

“ SPEED CUSHIONS” A TRAFFIC CALMING TECHNIQUE

E.M.U. SCHOOL OF POLICE STAFF AND COMMAND

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ABSTRACT

This paper and associated research addressed a quality of life issue raised by concerned residents of the City of Grosse Pointe, speeding and increased traffic volumes on residential streets. The problem of speeders or the perception by the residents is an historical one. The Department of Public Safety has over the many years of complaints tried various techniques to address this problem with limited success.

The residents of one unique street coming together as a neighborhood community made a new approach possible. Collectively with the assistance and participation of the Department's Public Safety Committee, the City Council and administrator's, several incremental steps were taken to try an innovative approach of traffic calming by the installation of speed cushions.

The purpose of this approach was clear, to attempt to reduce the perceived speeding and traffic volume in this particular block. Several traffic studies or counts were conducted before the installation to determine exactly what the problem was. Through this research, it was determined that although the speeding was not an issue the traffic volume was indeed higher than adjoining streets. Due to the emotional pleas of the residents and the high traffic volumes, the City Council made the decision to purchase these cushions to test their effectiveness on a one-year trial basis.

Traffic counts after the installation proved they did in fact work. Not only did they reduce the average speed of the motorists, they tremendously reduced the traffic volume without negatively impacting the adjoining streets.

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INTRODUCTION

The City of Grosse Pointe is a residential Community of 6,000 residents. As in any community I believe one of the most important quality of life issues raised by the residents is their concern regarding speeders and traffic volume.

As the demographics of the community have changed with younger couples moving in and raising families, these concerns are becoming a routine on an almost daily basis. This Departments budget is, like most agencies struggling to maintain essential services while suffering cutbacks on the State and local level. The challenge then, is to address these very real concerns of the community while demonstrating a need to the Council and City Administrators to try an approach never before attempted and to expend taxpayer dollars on a technique that is unique to our area of the State.

This approach or traffic calming technique is the installation of "Speed Cushions". Unlike a speed hump or speed bump, a speed cushion is lower in profile, approximately three inches in height and made from recycled rubber (Beaubien). They are bolted into the street and designed to comfortably accommodate drivers traveling 25mph or less. These cushions were chosen over a speed hump or speed bump because of their design and reported effectiveness (DeWitt).

One particular street in the City of Grosse Pointe has been selected for this installation. This street is unique in that it is considered a cut-through street. As a result, an excessive daily traffic volume occurs and a perceived speeding problem by the residents exists. In addition, this one block experiment also is home to over 40 school age children.

The City of Grosse Pointe Department of Public Safety, City Administrators, members of Council and the residents of this street have united in a way to try to resolve their concerns.

The ability of the residents to voice their concerns, address City Council and have a cooperative relationship with the Public Safety Department has resulted in Council expending the dollars necessary to implement several incremental steps, which has resulted in the installation of three speed cushions on this residential block.

BACKGROUND AND SIGNIFICANCE

The major problem and concern to residents is the heavy traffic volume and speeding on Rivard Blvd. Rivard is unique in that it is the only city street that runs from the southern most border street to our northernmost boundary which is the City of Detroit. At the northernmost boundary Rivard continues into Detroit and runs all the way to the 1-94 freeway.

This route is used as a cut-through or collector street for leaving and entering the City of Grosse Pointe. It has become a preferred choice for drivers to frequent our Village shopping district and local hospital. It has also become a street most traveled for our high school age drivers who leave school during lunch hour to visit fast food establishments in the City of Detroit.

The complaints of the Rivard residents are not new. Calls for selective traffic enforcement on this street have been continuous for several years. As the perceived observations of speeders and excessive traffic volume have intensified in the last three years, it became clear that additional steps were in order.

Originally developed in Great Britain by the Transport and Road Research Laboratory, the parabolic shaped speed cushion is used throughout Europe, Australia, and New Zealand. These devices are popular in the south and western areas of the U.S. including California, Texas, Oregon and Florida (Beghin).

Their application brings mixed feelings among municipalities and residents alike. The major objections to any traffic-calming device originate from police and fire departments because they have been proven to increase response times and are reported to be difficult for long-axeled vehicles to traverse (such as fire trucks, ambulances, and buses (Austin.tx.us)).

Installed on public residential roadways, speed cushions are designed to cause driver discomfort if the vehicle is not slowed to a speed of 15-25mph. They are proven to be most effective on roadways with a speed limit of 30mph or less, and an 85th percentile speed of 31-34 mph.

It is important to note that speed humps are not an “official traffic control device” nor are they addressed in the “*Manual of Uniform Traffic Control Devices*”. Consequently, courts have held the installing agency liable for damage and personal injuries resulting from speed humps which can be particularly hazardous to drivers and passengers who suffer from spinal problems and certain medical conditions (such as osteoporosis). (Sakai)

According to the Missouri City, Texas Department of Public Works (5/2002), several tests throughout the world on speed humps have raised questions about their safety and effectiveness. Test results indicate:

- ❑ Speed humps do not significantly reduce vehicle speeds once the vehicle has left the speed hump. In fact, the discomfort and shock sometimes decreases as vehicle speeds increase.
- ❑ Speed humps may present a potential hazard to all vehicles and an immediate danger to bicyclists, motorcyclists and emergency vehicles.
- ❑ Speed humps cannot be designed to meet the specifications for all types of vehicles because of the wide variety of handling and ride characteristics.

- ❑ Traffic volumes on streets adjacent to streets where the humps are located often increase when drivers try to avoid the speed humps by taking alternate routes.
- ❑ Speed humps increase noise levels 10-20 decibels when wheels hit the pavement. Increased noise is particularly bothersome in residential areas.

Based on various studies, which have raised concern about the potential dangers of speed humps, “.....the State of Texas does not recognize speed humps as an official traffic control device. For these reasons, the City of Missouri City does not use speed humps on public streets.”

Another concern with traffic calming devices such as these is that they reportedly have a negative impact on air quality and energy consumption due to the increased slowing and braking. In one European study and another in Oregon, air pollutants can be up to 10 times greater in neighborhoods with speed humps. These toxic mixtures include carbon dioxide, carbon monoxide, nitrogen oxides and other volatile organic compounds.

Following is data on speed hump technology throughout the United States, Canada and Europe. Most of the advantages and disadvantages listed come from Engineering organizations and various municipalities in the U.S. Although there are several citizen advocacy groups that oppose speed humps, most of their objections coincide with documented research. Also included is objective data supported by municipalities and professional engineering organizations.

ADVANTAGES

- ❑ Properly installed and maintained, speed humps can be a safe, effective method of reducing vehicle speeds through residential areas.
- ❑ They sometimes discourage cut-through traffic and can be effective in re-routing traffic to adjacent streets.

- ❑ They reduce vehicle speeds to 15-20 mph during the traverse, and 25-30 mph between properly spaced speed humps.
- ❑ Speed humps generally have a high degree of resident satisfaction.
- ❑ Typically costing under \$3,500.00, they are less expensive than other traffic calming measures such as traffic circles and chokers.
- ❑ On some streets where speed-related accidents are prevalent, it can lower these types of accidents by 13 percent (not adjusted for traffic diversion to other streets)

DISADVANTAGES

- ❑ They can slow down emergency vehicles up to 10 mph per hump (particularly for an ambulance transporting a patient).
- ❑ They can be hazardous to drivers, passengers and cargo of long-axle vehicles that have tight suspension systems.
- ❑ Spinal injuries have been reported when the occupants of the vehicle strike the ceiling with their head. (One particular case was a firefighter wearing a seat belt, who struck the ceiling of the fire truck). Installing agencies have been held liable for damages and/or injuries resulting from speed humps.
- ❑ They can cause damage to the undercarriages of low-slung sports cars.
- ❑ Speeds may increase between humps to make up for lost time.
- ❑ The Manual of Uniform Traffic Control Devices does not recognize them as a traffic control device.
- ❑ Speeds may increase over time as motorists get used to the “feel” of the humps.

- ❑ Speed humps can increase noise levels (10 to 20 decibels) in the immediate area due to braking and acceleration. Residents must tolerate this noise day and night as vehicles traverse the hump.
- ❑ Motorcycles and bicycles must use extra care when crossing.
- ❑ Studies show that they may or may not reduce traffic volumes
- ❑ Motorists can lessen the impact by driving over the hump with their right wheels in the gutter.
- ❑ Snowplow drivers must use caution and slow down when traversing asphalt humps.
- ❑ Removable, composite humps cannot be plowed over. They are either removed in the winter months or the plow operator must lift the blade to clear the humps.
- ❑ Motorized street sweeping equipment cannot be used on portable humps.
- ❑ Speed humps require signing and striping, which some residents consider unattractive.

MICHIGAN APPLICATIONS

An effort was made to determine what Michigan municipalities utilize speed humps by contacting Police Departments throughout the state. Following are 5 responses.

JACKSON

Robert Dietz, a City engineer for Jackson, stated that they have 2 speed humps; one on a street that services a small business district (about 400 feet long) and one in a city park. They are of asphalt construction and were installed about 2 years ago. Both have slowed speeds, but there was no change in vehicle volumes. There have been no accidents or incidences related to them. The city paid for their installation.

GRAND BLANC

Lt. Baker indicates that they have 3 speed humps on one street that were installed about 6 years ago. They are constructed of asphalt and were installed due to resident complaints of cut-through traffic. There have been no resident complaints or accidents related to them. The 85th percentile dropped, but there have been no changes in traffic volume.

GROSSE POINTE WOODS

Traffic Safety Officer Sally Beghin stated that they have conducted research on the feasibility of installing speed cushions on one street that has experienced high traffic volume. A final determination has not been made and they are awaiting the results from the City of Grosse Pointe.

LANSING

Patrick Landry, a city engineer for Lansing provided an extensive report on their experiences with traffic calming measures. They currently have about 12 streets with humps, totaling about 30 humps. Their written policy requires that 51% of the residents support the installation, and if the street qualifies, the city pays for 100% of the hump. If it fails to meet the criteria, the application is rejected. The city also requires an engineering study showing 85th percentiles over 35 mph and volumes between 500-3,000 vehicles per day (VPD). Resident-satisfaction with the humps varies; some are pleased with it, others see them as a nuisance.

The following table demonstrates data excerpts from Lansing's "Tecumseh River Road Traffic Study". Tecumseh is a 2 lane, 25 mph residential street with 14 speed humps. A traffic study utilizing "before and after" data was conducted to determine the humps effectiveness in lowering the 85th percentile.

TECUMSEH RIVER ROAD TRAFFIC STUDY

T his data clearly indicates that in this particula r applicati	AREA I. D. #	BEFORE SPEED HUMPS		AFTER SPEED HUMPS	
		Volume	85 th percentiles	Volume	85 th percentiles
	1.	2,700	34.3 mph	2,225	24.6 mph
	2.	1,550	39.1	1,575	27.8
	3.	1,075	27.9	1,050	29.5
	4.	1,125	33.9	700	28.2
	5.	700	38.6	550	24.4
	6.	1,250	34.4	1,025	34.0

on, speed humps lowered the 85th percentile and has had some effect on traffic volumes. However, the success of speed humps can create unexpected positive or negative results. For example, in area 2, speed humps raised the volume, but lowered the speed and in area 6, they lowered the volume but had no effect on speeds.

FARMINGTON HILLS

Farmington Hills has one of the most progressive and comprehensive traffic calming programs in Michigan. Utilizing their traffic engineering division, they have instituted a safety strategy regimen known as the *Traffic Safe-TE3 Program*. Used successfully in other areas of the U.S., it involves an educational process that promotes cooperation between residents, police and the engineering department. This “team approach” was developed to help determine the seriousness of the traffic situation and to provide a resolution that is most appropriate. Divided into three phases (Problem Identification, Education/Enforcement, and Engineering), it has been a very successful program that receives positive feedback from the residents.

Mr. Timothy Dewitt, a traffic engineer with Carrier and Gable and Mr. Robert DeCorte of the Traffic Improvement Association of Michigan were contacted to discuss the traffic calming strategies that are used in Farmington Hills and our concerns with Rivard Blvd. I explained the problems we have with Rivard traffic volumes and the 85th percentiles up to 34 mph. It was the opinion of Mr. Dewitt and Mr. DeCorte that due to the “cut-through factor”, Rivard presents a truly challenging situation from a traffic-calming standpoint. Many incremental steps were suggested and acted upon regarding Rivard. Signage such as “Slow Down Children Playing”, educational newsletters and articles in our local papers, heavy radar enforcement, the purchase of a speed trailer to collect data and as a visual reminder for drivers, the purchase of a motorcycle for side street enforcement equipped with radar, and ultimately the purchase of three sets of speed cushions have all been utilized to address this quality of life issue.

When asked of the feasibility of speed humps, they both agreed that an 85th percentile under 35 mph does not even meet their criteria for humps, citing that the best results you can achieve with speed humps is a speed reduction to about 30-32 mph; hardly a noticeable difference. However, in order to respond to the residents concerns, the Council went ahead with the purchase of the cushions.

Based on many studies throughout the United States, the average speed in residential zones is about 30 mph. According to *Safe TE3 literature*, a driver’s speed is the result of their comfort and confidence of the driving environment, weather conditions, obstructions, sight distance, pedestrian activity, other vehicles and the physical condition of the roadway. This statement is supported by many other Traffic Safety organizations around the world, and is heavily documented by solid research. The majority of drivers will travel at speeds that they feel are safe and prudent, taking into account the total driving environment.

The reports on speed cushions have shown that both the design and location or spacing of the cushions is most critical. For typical residential streets the most widely used design is the parabolic cushion. A series of cushions is more effective than a single installation. The spacing of the cushions ranges from 200 to 750 feet, depending on the desired 85th percentile speed between the cushions. Formulas have been developed to determine the optimal spacing of the cushions, depending on the use of either a 3-inch or a 4-inch high cushion. Adequate pavement markings and traffic signs are important to warn drivers of the speed cushions (MOHSP).

The speed cushion is not to be confused with the speed hump or bump. They are typically 3-5 inches in height and 1 to 2 feet in length. Because these designs are abrupt, they are considered to be potentially hazardous for motor vehicles. The main use of these designs is in private parking lots and on private roads.

LITERATURE REVIEW

Very few communities in the State have utilized the speed cushion approach. However, those communities were contacted and interviews conducted to determine the speed cushion effectiveness. Based on these interviews, the results obtained overall and the opinion that they were effective in satisfying the residents concerns, the process continued.

The Traffic Improvement Association was retained to conduct traffic-engineering studies and the firm of Carrier and Gable was hired to advise and install the cushions.

Mr. Timothy DeWitt of Carrier and Gable was involved with the traffic calming measures undertaken in Farmington Hills MI. Those measures were reviewed and the data studied to ultimately decide to try this technique (Farmington Hills Public Works).

The Michigan Office of Highway Safety Planning publishes a book entitled **SPEED CONTROL IN RESIDENTIAL AREAS**. This booklet was very informative and instrumental in

determining our decision in proceeding with the installation of the cushions. Several advantages and disadvantages were considered and shared with all parties to make an informed decision based on information in this brochure. Additional information was obtained from the internet during this research some of which proved useful in explaining to the residents and council the concept and history of the traffic calming approach in residential neighborhoods (Smith).

PROCEDURES

As indicated earlier, the situation on Rivard has been an ongoing process for many years. In order to answer the concerns of the residents several incremental steps were taken to alleviate their concerns.

The overall approach to address citizen concerns and work together to examine problems has been through education, engineering studies and enforcement.

Back about fifteen years ago, the residents of Rivard voiced their concerns much like many other homeowners did in the City of Grosse Pointe regarding speeders and traffic safety issues. Occasionally, a resident would call the Department to complain about speeders and parking concerns on their particular street. The Department through the Chief or his designee would respond by talking to the concerned party and then agree on the best approach to the problem. In some instances, a traffic engineering study was performed by AAA to establish the areas of concern and how to best address them (Kennedy).

Generally, the approach was to install signage to warn drivers of children playing, articles in the local paper and selective traffic enforcement. As a rule, once the area was targeted, the complaints would cease, as the resident was happy to see the police out enforcing the twenty-five mph speed limit.

The current issue regarding traffic volume and perceived speeding on a particular block of Rivard started to heat up in 2000'. This time, it was not a homeowner or two asking for assistance in controlling this quality of life issue. As indicated earlier, the demographics of the community had started to change. As younger couples moved in and started having families their concerns increased. The residents of this block had formed a close knit group of concerned parents with one voice speaking for all. A letter was sent to the Police Department and Council asking for help in reducing speeders and volume on their street. The following scenario is how collectively the speed cushions came to be installed.

After receiving a letter from a resident spokesperson, the Chief of the Department met with her. Recognizing the history of complaints on Rivard, recognizing it as a cut-through or collector street and aware of the change in the neighborhood it was decided that several steps were in order.

PUBLIC SAFETY COMMITTEE

This committee was formed to address a myriad of issues regarding the Public Safety Department. This committee was a perfect setting for the resident's complaints. The spokeswoman for the Rivard residents, hereinafter known as the "Rivard Group" met with Public Safety Committee on several occasions.

The Committee is composed of the City Manager, one councilperson, the Chief and one or two additional Public Safety Department personnel as well as a citizen representative. After the first meeting it was determined that the Traffic Improvement Association representative would also be included in on-going talks and future traffic studies. The concerns of the residents were considered and together several steps were taken.

EDUCATION

A local news reporter was contacted with stories printed regarding the concerted effort by the City and residents to address the issue (Caprara). Several letters to the editor of the paper started to appear by the residents appealing to drivers to slow down for the safety of their children. A letter to the residents was also sent by the Department explaining the concerns and informing them of future plans to address the problem, such as the purchase of traffic control devices.

SIGNAGE

Not wanting to go sign crazy but still wanting to get the message out, new signs went up warning drivers of children playing in the area. Additionally, red flags were placed on the signs to make them more noticeable.

SPEED TRAILER

A new speed trailer was purchased. After much research, a speed trailer with an on-board computer was purchased (MPH). This new addition to the effort serves many purposes. As a visual aid to the drivers it has been very well received and appreciated by the residents. It can and is taken to every street in the City where data can be collected regarding speed and volume of motorists by the hour. The on-board computer can be removed from the trailer and placed to collect data through the use of road tubes while the trailer is still being used in other areas such as school zones.

TRAFFIC ENGINEERING STUDIES

The Traffic Improvement Association conducted studies on the block of Rivard in question and adjoining streets to determine traffic volumes and speed. These studies are displayed in the following tables (DeCorte).

MOTORCYCLE

For the first time since 1952, the Department acquired a motorcycle. This Harley Davidson designated Motor-2 is outfitted with radar and can patrol City streets to do stationary radar enforcement. It is much easier for the Motor-2 officer to maneuver on the narrow streets than a full sized crown vic police car.

TARGETED ENFORCEMENT

Heavy enforcement action took place for several months in this area. Many drivers were stopped for speeding/issued violations and advised as to why the enforcement action was on going. As in any scenario regarding residents complaining about speeders, the residents themselves sometimes get caught up in the enforcement action. This situation was no different, with those residents stopped for speeding being issued violations as well.

UPDATES TO COUNCIL

On a monthly basis the status and progress of the concerted efforts were reported to Council. Many times the Rivard Group representative spoke at council meetings to voice their appreciation for the efforts.

EVALUATION

The Traffic Improvement Association study was completed June of 2002. It showed that the 85th percentile did not justify any additional traffic calming devices or implementation. It did show that the volume on Rivard was considerably higher than on adjoining streets. This volume was determined to be a result of Rivard being used as a cut-through street.

The report by the Traffic Improvement Association was not well received by the Rivard Group. Understandably their greatest concern as well as the Public Safety Department and City Council's is the safety of the residents. In this instance the safety of the 40 school age children

who live and play in the neighborhood was in question. Emotions were running in high gear by the residents that more needed to be done before a tragedy occurred.

TRAFFIC CALMING DEVICE/SPEED CUSHIONS

Research was done regarding the speed cushion alternative. After further meetings with the Rivard Group and the traffic engineers, it was decided to approach City Council with the recommendation to purchase three sets of speed cushions to be placed on the 800 block of Rivard.

This installation would be for a one season trial basis. The cushions were ultimately approved by Council and installed in the Spring of 2003. The installation was approved with several conditions established by the Public Safety Department and Council. A residential petition was circulated and stipulated the following.

RESIDENTIAL PETITION FOR TRAFFIC CALMING MEASURES ON RIVARD BETWEEN CHARLEVOIX AND GOETHE IN THE CITY OF GROSSE POINTE

The City of Grosse Pointe will assist residents in selecting traffic calming measures which will improve the quality of living on any given block provided the measures do not conflict with the Public Safety Department's responsibilities. After much discussion and many meetings, the City has agreed to purchase 3 speed cushions to be installed on Rivard between Charlevoix and Goethe. These speed cushions are designed to slow drivers down on your residential street. This approach has been discussed with residents, Traffic Improvement Association representatives and Carrier and Gable representatives who will supply and supervise the installation.

These cushions are removable and would typically be installed in the spring and removed in the late fall to allow for snow removal. This installation would be tested for a one year time

period. A traffic study will be performed before, during, and after installation to determine their effectiveness.

In general, if 75% of the homes (both sides of the street and corner homes), on any given block, as indicated by the signature of the head of the household on the petition form support the “Traffic Calming Measure”, it will be considered for implementation by the Department of Public Safety and appropriate City authorities.

Date Issued: _____

Petition Circulated By: _____

(Address)

(Phone number)

We, the undersigned residents of the City of Grosse Pointe do hereby petition the City of Grosse Pointe Department of Public Safety to impose the following “TRAFFIC CALMING MEASURES” on:

_____, between _____ and _____

Describe Regulations:

- A. Three “SPEED CUSHIONS” to be installed. They are to be equally spaced on Rivard between Charlevoix and Goethe.
- B. Six signs indicating the “SPEED CUSHIONS” (2 AT EACH LOCATION) to warn approaching drivers.
- C. A one-year trial basis for the “CUSHIONS”
- D. Traffic studies to be done before, during, and after removal of the “SPEED CUSHIONS” to determine their effectiveness, (time and duration to be determined by the Traffic Improvement Association)

By placing my signature on this petition, I understand and support the “TRAFFIC CALMING MEASURES” being implemented by the City of Grosse Pointe.

NAME _____ ADDRESS _____ PH # _____

This petition was circulated by the ordinance officer for the City of Grosse Pointe who supplied each resident with photographs of the Speed Cushions installed in another residential community on the west side of the State. The petition was overwhelming signed by more than 75% of the residents. The purchase was completed and installation took place in April of 2003.

RESULTS

RIVARD 85TH PERCENTILES

In order to put the perceived speeding problem into perspective, the following comparables have been included in this report. These counts support the theory that the majority of drivers average about 30 mph or less on residential streets. These tables also indicate the impact the installation the speed cushions have had in reducing traffic volume on this particular block (TIA).

CHARLEVOIX TO GOETHE

MAY 28 THRU JUNE 04, 2002

BEFORE SPEED CUSHION INSTALLATION

STREET	AVERAGE SPEED	85TH PERCENTILE	TOTAL VEHICLES
Rivard	23.61 mph	29.44 mph	14,548
Washington	25.17 mph	29.80 mph	9,748
University	27.81 mph	29.45 mph	8,523

CHARLEVOIX TO GOETHE**JUNE 15 THRU JUNE 21, 2003****AFTER SPEED CUSHION INSTALLATION**

STREET	AVERAGE SPEED	85TH PERCENTILE	TOTAL VEHICLES
Rivard	22.5 mph	27.0 mph	11,406
Washington	24.5 mph	30.5 mph	9,576
University	26.5	31.0 mph	8,546

Clearly the 3,142 less vehicles per week on this residential street has had a tremendous positive impact on the quality of life issues the residents were concerned with.

DISCUSSION

The ultimate answer to the question of did this experiment work is without a doubt, yes it did. The installation of the speed cushions has been successful in not only reducing the traffic volume by 20% but it has reduced speed as well. As in other communities studied and referenced in this paper, the installation of these traffic-calming devices has proven effective to a degree.

Although the results are a welcome relief to the residents, concerns regarding driver safety continue. It has been observed by Department Staff and resident volunteers, that many drivers go around the cushions rather than over them. Even though this occurs, the drivers still slow down considerably in order to accomplish this. One expectation of the Police Department was that the residents were going to park on the street adjacent to the cushions. This approach would then force drivers to be channeled over the cushions rather than driving in the curb lane to

miss them altogether. The reality is that a large percentage of the time, residents do not park on the street, thus creating this opportunity to circumvent the speed cushions purpose.

This experiment has had a positive impact on the Police Department. The fact that it has been successful is even more satisfying. The opportunity to work with the residents in a positive manner to address this quality of life issue, the safety of our children has been most rewarding. The key to tackling this problem has been a commitment on behalf of the residents, City fathers and Police Department. By working together for the common goal of making safety our top priority, the Rivard residents have benefited while this experiment has not negatively impacted surrounding streets. Even though the 85th percentile did not indicate a speeding problem, the City Council listened to the pleas from the residents, recognized Rivard as unique with the cut through problems of increased traffic and decided to conduct this experiment.

RECOMMENDATIONS

In anticipation of the speed cushions being removed for the winter season, an opportunity exists to plan for next year's installation. The residents of this block have ideas and suggestions for a better approach next season. Although some residents do not like the cushions at all, the vast majorities are in favor of them and are happy with the results. However, one concern is to consider the possibility of making them wider by purchasing additional sections. This would make it more difficult for drivers to avoid them. This would be a simple budget request on behalf of the Police Department for the next fiscal cycle. The City Council has been made aware of the request and understands it would be beneficial.

A survey will be circulated this winter to all the residents on this particular block. The survey will ask for feedback regarding the speed cushions in general and any ideas regarding them. The residents will also be asked to describe any additional thoughts on the cushions, how

their quality of life concerns have been affected and any particular problems that may have been unforeseen before the installation but are now apparent.

Finally, after being given a report on the reduced speed and traffic volume during this experiment, a new petition will be circulated in the spring of 2004' to confirm the residents desire to continue with this traffic calming measure.

This experiment although successful in the City of Grosse Pointe does have its drawbacks. Much research is needed to determine if this type of traffic calming measure is appropriate to address citizen concerns regarding surface street speeding and traffic volumes.

This particular street is unique in the City and therefore the City Council and Police Department felt comfortable in attempting this approach. The spin off of such an undertaking is that the Department was flooded with calls from residents on adjoining streets also asking for speed cushions. It has become a political issue with many residents upset that they cannot have the same opportunity as the Rivard residents. Due to the fact that only Rivard is considered a cut through street and did have increased traffic volumes it became a unique street and therefore a candidate for these cushions. Several issues were immediately raised when the traffic calming approach was suggested. The most immediate was where research for this type of approach would be found. This Department is now a source for other agencies to contact as a result of the implementation.

An approach like this has never been done before in our area of the State. This agency has had many requests from other police agencies for information regarding the speed cushion installation and welcome their inquiries.

Many municipal fire departments and ambulance organizations are opposed to traffic calming measures such as the speed cushions. They sight delayed response times, and potential

injury to firefighters and patients (Austin.tx). All these issues should be considered when contemplating the installation of any traffic calming measure.

The City Council acted after being approached by concerned residents. The request was acted upon by conducting traffic surveys measuring traffic volumes, traffic speeds, and an affirmative requirement of 75% of the residents affected on this particular block.

Although the City Council and Police Department felt this request was appropriate and reasonable for this particular block of Rivard, there are no plans to install additional speed cushions in any other area of the City.

BIBLIOGRAPHY

- Austin City Connection, Speed Hump <http://www.ci.austin.tx.us/roadworks/humps.htm>
- Austin City Connection, <http://www.ci.austin.tx.us/roadworks/toolbox.htm>
- Baker, Lt. Grand Blanc Police Department, interview/research (2002)
- Beaubien, <http://www.rubberroads.com>
- Beghin Sally. Traffic Safety Officer Grosse Pointe Woods MI. interview/ research (2003)
- Caprara, Bonnie. Grosse Pointe News reporter personal interview, (May 2002)
- DeCorte, Robert. Traffic Improvement Association adviser to project, (2001/2002)
- DeWitt, Timothy. Carrier & Gable adviser to project, (May 2002)
- Dietz, Robert. Jackson MI. interview/research (2002)
- Farmington Hills Department of Public Works, Kevin Murphy engineer/advisor (2002)
- Florida Innovation Group 813-971-1025 “European Speed and Traffic Control” (2002)
- Kennedy, Bruce. Chief retired, City of Grosse Pointe, personal interviews (2000-2003)
- Landry, Patrick. City Engineer Lansing MI. interview/research (2003)
- Manual of Uniform Traffic Control Devices reference handbook (2000-2003)
- MPH Industries, Speed Monitor Trailer purchase (September 2001)
- M.O.H. S. P. “Speed Control in Residential Areas Handbook (1998)
- Missouri Department of Public Works, research (2003)
- SAFE TE3, City of Farmington Hills handbook, (1999)
- Sakai, Dennis, M.D. Opinion on speed hump impact on spinal cord patients
- Smith, Daniel “Temporary speed hump impact evaluation” 2002
- T.I.A. Traffic Improvement Association retained engineering studies, (2001-2003)